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EXHIBIT A

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are mirror images of each other and thus are not superposable. 2 either of the two crystalline forms exhibited by a pair of enantiomers. Use of the term to mean enantiomer is depre-

enantiomorphic or enantiomorphous of, or pertaining to, an enantiomorph: pertaining to the phenomenon of, or displaying enantiomorphism. The term is often used synonymously with enantiomeric (enantiomeric molecules frequently form enan-

(iomorphic crystals). enantiomorphism the phenomenon of being related as beiween an object and its nonsuperposable mirror image. The term is used especially in relation to enantiomorphic crystals.

enantiomorphous see enantiemorphic. enantiotopic 1 when chemically-like ligands in constitutionally equivalent locations (generally the two a ligands in Caabe) are related by a centre or plane of symmetry, or by an alternating axis of symmetry (but not by a simple axis of symmetry), they are enantiotopic. The two ligands are in a stereochemically different, mirror-image environment. If each a ligand of Caabe is replaced separately by a different, achiral ligand, d, the products are the two enantiomers of Cahed. Example: the methylene hydrogens of ethanol are enantiotopie; if ethanol is written as a Fischer projection structure with OH at the top, H-C-H in the middle, and CH3 at the bottom, the left-hand hydrogen of the central methylene is Hs, while that at the right is  $H_R$  (see pro-Ripro-S convention). Replacement of  ${}^1H_R$  by  ${}^2H$  yields (+)-(R)-[1-2H]ethanol and the same replacement of 'Hy yields the enantiomer, (-)-(S)-[1-2H1]ethanol. In another important compound, citric acid, the two CH2COOH groups are also enantiotopic. 2 the two faces of a double bond or of a planar cyclic ring system that are related by a symmetry plane but not by a C2 axis (i.e., a two-fold axis of symme-(ry) are enantiotopic; the two faces show stereochemically different, mirror-image related environments. Separate addition of the same achiral reagent to the two faces (see ReiSi convention) gives enantiomeric products. Example: the simple addition of HCN to CH<sub>3</sub>-CHO yields a racemic mixture of the (R) and (S) cyanohydrins, CH,-CH(OH)-CN, with both faces of C=O being involved. The reduction of the C=O bond of CH1-CHO to form ethanol by alcohol dehydrogenase requires addition of a hydride ion from NADH at the C atom and a hydron at the O atom. Thus, reduction of CH3-CHO with NAD3H at its A face (see diastureotopic (def. 2)) yields (R)-[1-Hilethanol and reduction of CH3-C2HO with 4-NADH yields (S)-[1-3H1]ethanol. The enzymatic reduction is stereospecific and only one of the enantiotopic faces of C=O is attacked; it is the same one (the Re face) in both of these situa-

tions. Compare diastereotopic. encapsidate to surround (a particle of viral nucleic acid) with

a capsid. -encapsidation n. encapsis the association of myofibrils into bundles and the further association of these bundles into larger bundles, etc.

oncophalin a variant spelling of enkephalin.

encephalitis inflammation of the brain. 3' end the end of a linear polynucleotide strand at which the 3'hydroxyl group of the terminal nucleoside residue is normally

not phosphorylated. 5' end the end of a linear polynucleotide strand at which the 5'hydroxyl group of the terminal nucleoside residue is normally

phosphorylated.

end+ a variant form of sado+ (sometimes before a vowel). end capping (in chromatography) the blocking of residual silunol groups on the surface of silica where these remain exposed after the bonding of C1s or other alkyl chains to the silica in the formation of reversed-phase stationary phases for column chromatography. For this purpose hydrocarbyl silanes (see silens (def. 3)) having small alkyl (usually methyl) groups are used so that they can penetrate between the main bonded-phase groups.

endemic present in or peculiar to a more or less localized area. e.g. an endemic disease. Compare enzoetic.

endergonic describing a process or reaction on which work must be done, i.e. one requiring an energy input, for it to take place. At constant pressure and temperature the free energy content of such a system increases. Compare exergenic. [From endo+ plus Greek ergon, work.]

end group any residue at an extremity of a branched or linear

macromolecule end-group analysis determination of both the nature and the number of terminal groups in a macromolecule, e.g. in proteins, the N- and C-terminal amino-acid residues: in polynucleotides, the 3'- and 5'-terminal nucleotide residues.

endo+ or (sometimes before a vowel; end+ comb, form meaning

within, inner, absorbing, containing, Compare exo+. See also

endo- prefix (in chemical numerclature) denoting insertion (of the additional constituent(s) specified) into the structure of (a named compound); e.g. endo-4a-glycine-[5-leucine]enkephalin: endo-Gly-10-[Leus]enkephalin: Tyr-Gly-Gly-Phe-Gly-Leu: a synthetic polypeptide in which a glycine residue has been inserted between residues 4 and 5 of (5-leucine)enkephalin.

endo- prefix (in stereochemistry). See conformation endoamylase any amylase that hydrolyses nonterminal glycosidic linkages: it is a subcategory of andoglycosidese

endocrine 1 describing or relating to any gland or other group of cells that synthesizes hormones and secretes them directly into the blood, lymph, or other intercellular fluid. 2 describing or relating to a secretion of endocrine tissue. 3 a secretory product of endocrine tissue; a hormone, Originally known as

sternal secretion. Compare execrine. endocrine gland or ductless gland any of the ductless glandular structures that secrete (one or more) hormones directly

into the bloodstream.

endocrinology the science concerned with the endocrine organs, their products, and the effects of these products. endocrinological adj.

endocytic 1 situated within a living cell but not belonging to the cell itself; intracellular, 2 an alternative term for endo-

cytotic (see endocytosis).

endocytosis the uptake of external materials by cells through the mechanism of phagocytosis or pinocytosis. The term is often used interchangeably with pinocytosis. Compare exacytosis. transcytosis. See also internalizo, viropexis. -- endocytic or endocytotic adj.; -endocytose vb.

endocytotic vesicle see placeytotic vesicle

endodeoxyribonuclease see deexyribonuclease.

endoenzyme 1 any intracellular enzyme. Compare ectoenzym zyme (def. 1). 2 any enzyme that catalyses eedohydrolysis. It may be an endoglycosidase, an endonuclesse, or an endopeptidase. Compare excenzyme (def. 2).

endogenous arising or developing within an organism, tissue or cell, and excluding any consequences of externally added

agents or materials. -endogenously adv.

endoglin a major glycoprotein of vascular endothelium that may be important in the binding of endothelial cells to integrins. It forms a heteromeric complex with the signalling recep tors for transforming growth factor β (TGF-β). It has an RGD integrin-recognition motif and is a homodimer of disulfidelinked subunits. Example (precursor) from Sua scrofu: database code EGLN\_PIG, 653 amino acids (70.20 kDa).

endoglycosidase any enzyme within subclass EC 3.2. glycosidases, that hydrolyses nonterminal glycosidic linkages in oligo- or polysaccharides. Many activities of this type are

known, e.g. from Flavohacterium meningosepticum endohormone any hormone acting within the individual or-

ganism that produces it. Compare actohormon

endohydrolysis the hydrolysis, esp. by an endoenzyme, of any linkage between residues in a biopolymer. For example, endopopulases attack neither the C-terminal nor the N-terminal peptide linkages of an oligo- or polypeptide, and endoglycosideses attack the terminal glycosidic linkages at either the reducing or nonreducing end of an oligo- or polysaccharide.